



FIG. 1

>huGST-3 (from LifeSeq EST #2617407, ORF is highlighted in capitals)
gaattccattgtgttgggtacggaagacgacagaagggtagaggagaaaagcgcattgg
ccgggctagcagtgcagcctctcaaaagcagcaggggaagcccaagccacaaggtcttcc
acttcagcacaatgctactgcctaaaaaaATGAAGCTCCTGCTGTTTCTGGTTTCCCA
GATGGCCATCTTGGCTCTATTCTTCCACATGTACAGCCACAACATCAGCTCCCTGTCT
ATGAAGGCACAGCCCCGAGCGCATGCACGTGCTGGTTCTGTCTTCCTGGCGCTCTGGCT
CTTCTTTTGTGGGGCAGCTTTTGGGCAGCACCCAGATGTTTTCTACCTGATGGAGCC
CGCCTGGCACGTGTGGATGACCTTCAAGCAGAGCACCGCCTGGATGCTGCACATGGCT
GTGCGGGATCTGATACGGGGCCGTCTTCTTGTGCGACATGAGCGTCTTTGATGCCTACA
TGGAACCTGGTCCCCGGAGACAGTCCAGCCTCTTTCAGTGGGAGAACAGCCGGGCCCT
GTGTTCTGCACCTGCCTGTGACATCATCCACAAGATGAAATCATCCCCGGGCTCAC
TGCAGGCTCCTGTGCAGTCAACAGCCCTTTGAGGTGGTGGAGAAGGCCTGCCGCTCCT
ACAGCCACGTGGTGCTCAAGGAGGTGCGCTTCTTCAACCTGCAGTCCCTCTACCCGCT
GCTGAAAGACCCCTCCCTCAACCTGCATATCGTGCACCTGGTCCGGGACCCCGGGCC
GTGTTCCGTTCCCGAGAACGCACAAAGGGAGATCTCATGATTGACAGTCGCATTGTGA
TGGGGCAGCATGAGCAAAAACCTCAAGAAGGAGGACCAACCCTACTATGTGATGCAGGT
CATCTGCCAAAGCCAGCTGGAGATCTACAAGACCATCCAGTCTTGCCCAAGGCCCTG
CAGGAACGCTACCTGCTTGTGCGCTATGAGGACCTGGCTCGAGCCCCCTGTGGCCCA
CTTCCCGAATGTATGAATTCGTGGGATTGGAATTCTTGCCCCATCTTCAGACCTGGGT
GCATAACATCACCCGAGGCAAGGGCATGGGTGACCACGCTTTCACACAAATGCCAGG
GATGCCCTTAATGTCTCCCAGGCTTGGCGCTGGTCTTTGCCCTATGAAAAGGTTTCTC
GACTTCAGAAAGCCTGTGGCGATGCCATGAATTTGCTGGGCTACCGCCACGTGAGATC
TGAACAAGAACAGAGAAACCTGTTGCTGGATCTTCTGTCTACCTGGACTGTCCCTGAG
CAAATCCACTAAGaggggttgagaaggctttgctgccacctgggtgtcagcctcagtcac
tttctctgaatgcttctgagccttgccctacatctctgagccttaactacatgtctgtg
ggatcacactgagtggtgagttgtgtccacacgtgctcaagcagaaggacttttgtgt
ccatgcttgtgtctagaaaacagactggggaaccttatgtgagcagcacatcccacca
gtgaaacagggtattgctcttcttcttcttcttgatcttctgtctgggcagacttcag
agactttgtggcctggaggcctattaagcacgacacagtatcagtgggaattgatccat
aaacctccctgtccacatcttgcccaatggggaatggatctttcaccaaagagctcac
cagcattttccacagagatgcgaattctgagcccttgaggttcccaatgggattcaag
gaaggaagtgggaacaagggttgatgcctacttatgagcttgaccatacagctatcgg
taatcagaaatatgaaacaaaatctctgacaaaagagcaagctcttaagttcacaagg
tgcttgggcttgatttgaatatcatttccctttgcattttcccattacatagaaaact
ttgacctgtgaaacttgccatctgttaataactaaaattcccaaataagggttctgttta
gaatgtcccttttttatgcttcttaattattagcagtaaatgttcatttttatgggatc
ctaaaaaaaaa



FIG. 2

>huGST-3 (Full length EST Lifeseq #2617407)

MLLPKKMKLLLFLVSQMAILALFFHMYSHNISSLSMKAQPERMHVLVLSSWRSGSSFV
GQLFGQHDPDVFYLMPEAWHVWMTFKQSTAWMLHMAVRDLIRAVFLCDMSVFDAYMEPG
PRRQSSLFQWENSRALCSAPACDII PQDEII PRAHCRLLCSHNPLRWWKRPCRSYSHV
VLKEVRFFNLQVP I PAAERPLNLHIVHLVLDPRS VFRSRERTKGDL MIDSRIVMGQH
EQKLKKEDQPYVVMQVICQSQLEIYKTIQSLPKALQERYLLVRYEDLARAPVAQTSM
YEFVGLFLPHLQTVVHNITRGKGMGDHAFHTNARDALNVSQAWRWSLPYEKVSRLQK
ACGDAMNLLGYRHVRSEQEQRNLLLDLLSTWTVPEQIH

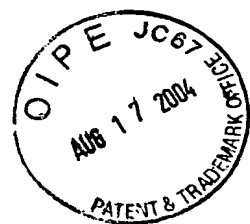


FIG. 3

>msGST-3 from mouse C57Bl/6 BAC clone #87(b15) (ORF is highlighted as capitals)

gggcatctaacttacacttgggtcagacaagacaagcttttgcctacaaaggccacact
ctgtcaggggtgtagaaaggtgtgggtgtggcagaactccctatagtgattaaatgt
gctgggtaggatattctcgggtggtttgatggatgagaaagcccagagggtagtthta
aagacttgtaacatagaatgcagtgatccaattaagagccagaattactttgcagagg
gatctggacaaataacttgcaggaatgttttttggtttttgtttgtttgtttgttt
tacattgctccttggatgggaatccagagaagcccgaaggtagatgctgtaacaacct
aactcagccccatccccctctgcttgccttttcaaggtcttctccttcttccgcaggAT
GATGCTGTTGAAGAAAGGGAGGCTGCTGATGTTCTGGGTTCCAGGTCATCGTTGTA
GCTCTCTTCATCCATATGTCCGTCCACAGACACCTTTCCAGAGGGAGGAGTCCAGGA
GGCCCGTGATGTGCTGGTGCTGTCTTCTGGCGGTGAGGATCCTCTTTGTGGGACA
GCTTTTCGGGCAGCACCCGGATGTGTTCTACCTGATGGAGCCTGCCTGGCATGTGTGG
ATGACTTTTACCAGCAGCACAGCCTGGAAGCTGCACATGGCTGTGCGGGATCTTCTGC
GTTCCGTCTTCTGTGTGACATGAGCGTCTTTGATGCCTACATGAACCCAGGCCCCCG
GAAACAGTCCAGCCTCTTCCAGTGGGAGCAAAGCCGGGCCCTGTGCTCAGCGCCTGTG
TGTGACTTCTTCCCTGCCCACGAGATCAGCTCACCCAAGCACTGCAAGCTGCTCTGCG
GTCAGCAGCCCTTTGATATGGTGGAGAAGGCCTGCCGCTCTCACGGCTTCGTGGTACT
CAAGGAGGTGCGTTTTTCTCAGCCTGCAGGCCCTCTATCCACTACTCACGGACCCTTCC
CTCAACCTGCACGTGCTGCACCTGGTCCGAGACCCCCGGGCCGTGTTCCGATCCCGGG
AGCACACCACCATAGAACTCATGGTTGACAGTCATATTGTGCTAGGGCAGCATTTGGA
AACGATCAAGGAGGAAGACCAGCCCTATTATGCCATGAAGATCATCTGCAAAAGCCAG
GTGGACATAGTCAAGGCCATCCAAACCCTCCCTGAAGCTCTGCAGCAGCGCTACCTGT
TCCTGAGGTATGAGGACCTGGTTCGGGCACCCCTGGCCCAGACGACCAGACTATATAA
ATTTGTGGGGTTGGATTTTTTGCCCCACCTCAAACATGGGTTTACAATGTCACCCGC
GGCAAGGGCATGGGTGAGCATGCCCTTCATACTAACGCCAGGAACGCCCTCAACGTCT
CTCAGGCGTGGCGTTGGTCCTTACCTTACGAAAAGGTTTCCAGCTTCAAGATGCCTG
CGGTGAGGCTATGGATTTGCTGGGATACCTCCAGGTGAGATCTCAACAAGAACAAGGC
AACCTGTCCCTGGATCTTCTGTCTCTCTCCCATATCTTGGGGCAGGTCTTCCGAGAAG
GTTAAggaggtctgtctgcaccccttgggtccagccttagtcaccattaaacgcacag
aagccttaaggtataaccaaactgagtgcccttttctcctcagccccaagcagagggg
tctttgtgtctatactcatgtctaccctacaactgagcctaaaaagccaagaaacagt
atctttctgtcttgaaaatacttaggaaccttaagcagccctttgacctgtcaagca
agactttcttgtaaccttggccttcttacctgtgcataccttgagagactcgggtctgga
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atcttttctaag

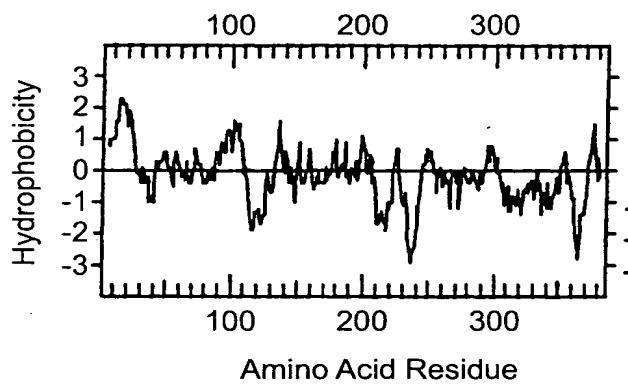


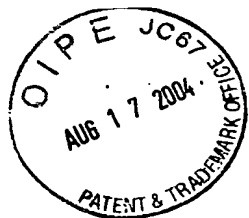
FIG. 4

>msGST-3 translation of ORF from mouse C57Bl/6 BAC clone #87(b15)
MMLLKKGRLLMFLGSQVIVVALFIHMSVHRHLSQREESRRPVHVLVLSSWRSGSSFVG
QLFGQHPDVFYLMPEPAWHVWMTFTSSTAWKLHMAVRDLLRSVFLCDMSVFDAYMNP GP
RKQSSLFQWEQSRALCSAPVCDFFP AHEISSPKHCKLLCGQQPFDMVEKACRSHGFVV
LKEVRFLSLQALYPLLTDPSLNLHVHVLVRDPRAVFRSREHTTIELMVD SHIVLGQHL
ETIKEEDQPYYAMKIIICKSQVDIVKAIQTLPEALQQRYLFLRYEDLVRAPLAQTTRLY
KFVGLDFLPHLQTWVYNVTRGKGMGQHAFHTNARNALNVSQAWRWSLPYEKVSQ LQDA
CGEAMDLLGYLQVRSQQEQGNLSLDLLSSSHILGQVFREG



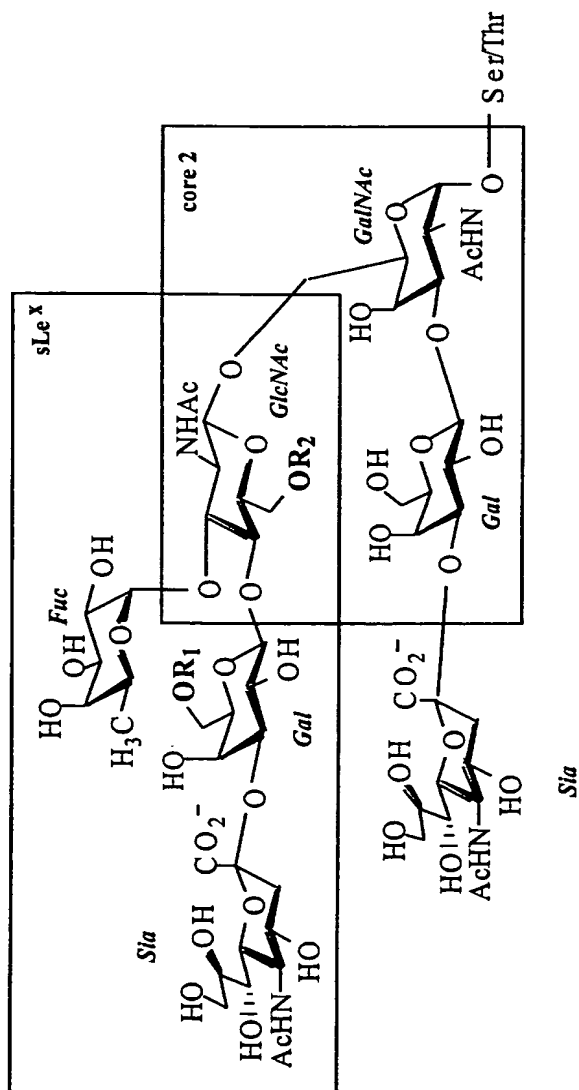
FIG. 5





	106		134
HEC-GlcNAc6ST	SW	RS	GSSSFVGLFCQHPDVFYLMETPAWHV
GlcNAc6ST	TW	RS	GSSSFVGLFNQNPVFFLYEPVWHV
KSGal6ST	TT	RS	GSSSFVGLFNQHLDVFYLFEPYHV
C6ST	TT	RT	GSSSFVGEFFNQGNIFYLFEPYWHI
	249		270
HEC-GlcNAc6ST	DP	SL	NLHIVHLVRDPRAVFRSR
GlcNAc6ST	DP	AL	DLKVIHLVRDPRAVASSR
KSGal6ST	DP	RL	NLKVLOLVRDPRGILASR
C6ST	DP	RL	DLRVIOQLVRDPRAVLASR
	320		339
HEC-GlcNAc6ST	PK	AL	QERYLLVRYEDLARAP (SEQ ID NO: 16)
GlcNAc6ST	PD	WL	QGHYLLVRYEDLVGDP (SEQ ID NO: 17)
KSGal6ST	PE	WL	KGYMLVRYEDLARNP (SEQ ID NO: 18)
C6ST	PA	WL	RGRYMLVRYEDVARGP (SEQ ID NO: 19)

FIG. 6



$\text{R1} = \text{H}, \text{R2} = \text{SO}_3^- : 6\text{-sulfo sLe}^x$
 $\text{R1} = \text{SO}_3^-, \text{R2} = \text{H} : 6'\text{-sulfo sLe}^x$
 $\text{R1} = \text{R2} = \text{SO}_3^- : 6',6\text{-disulfo sLe}^x$

FIG. 7

FIG. 8

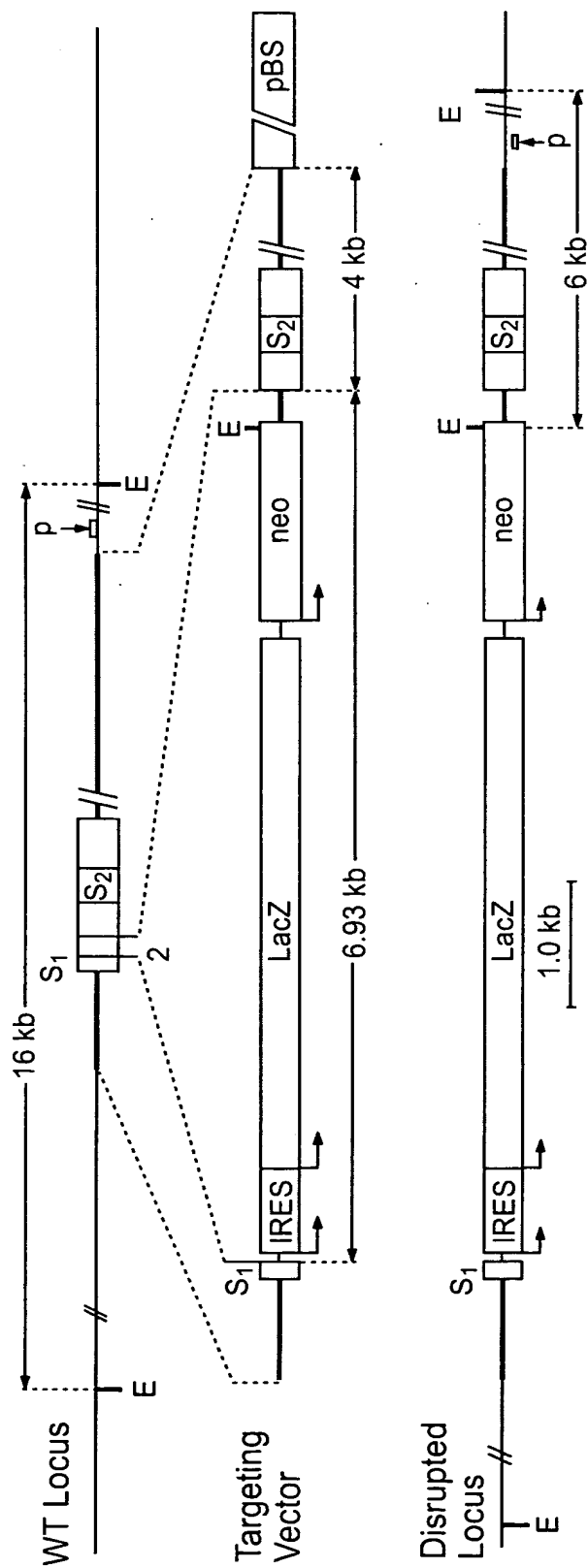


FIG. 9A

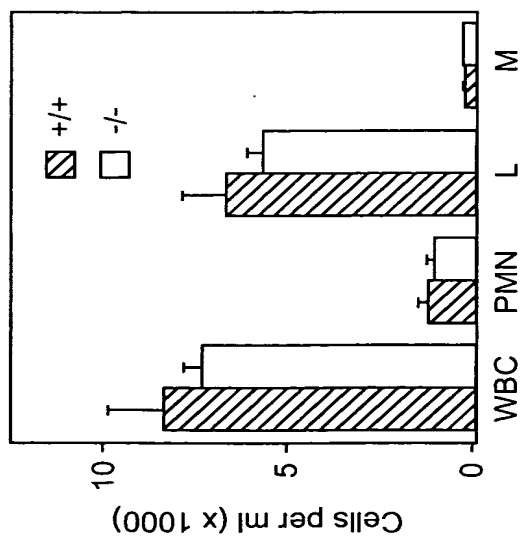


FIG. 9B

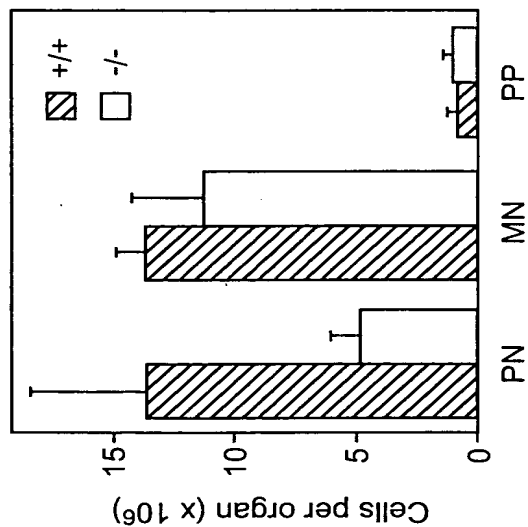


FIG. 9C

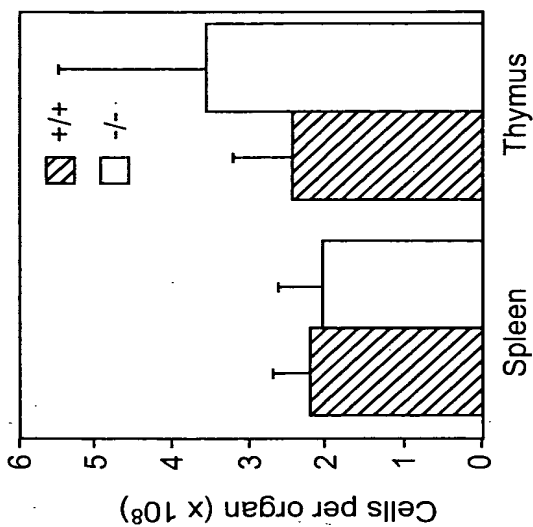
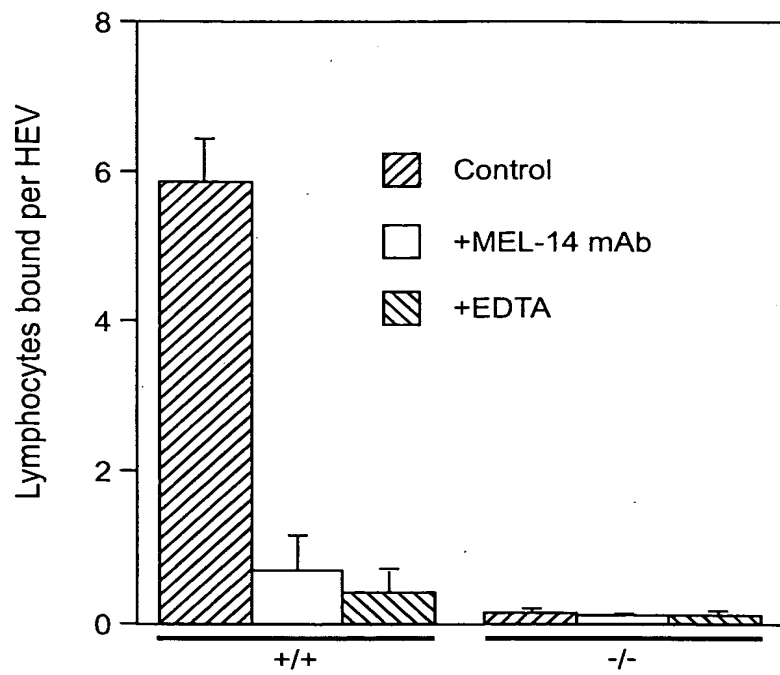




FIG. 10



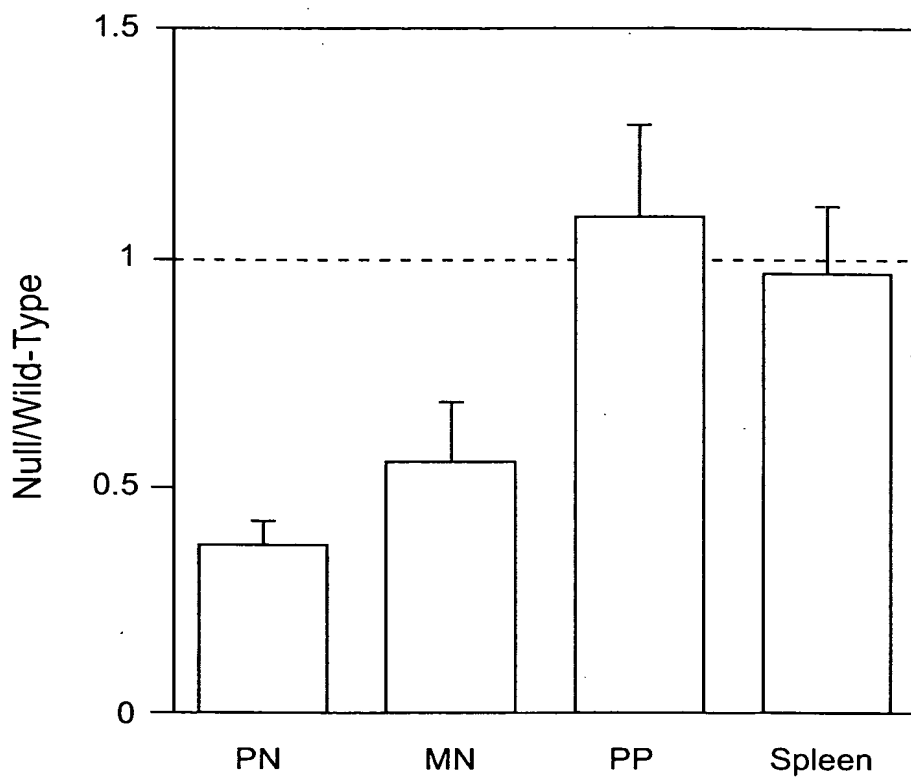
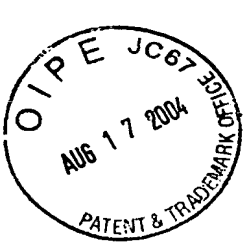


FIG. 11